

**From:** Angela McFadden/R3/USEPA/US  
**Sent:** 4/13/2010 9:44:44 AM  
**To:** Martin Schwartz/R3/USEPA/US@EPA  
**CC:** Amy Bergdale/R3/USEPA/US@EPA  
**Subject:** Re: radiation levels

Martin,

Just for context, these levels are much lower than what we've seen in the past for frac flowback. We'd be very interested in seeing what levels are coming out the back end of that WWTP. Wonder if this guy would like to share the docs from his file reviews? We don't normally receive permit applications here at EPA and only get copies of the permits themselves for major sources.

Angela

Tel. (215) 814-2324  
cell (215) 287-7823  
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**From:** Martin Schwartz/R3/USEPA/US  
**To:** Angela McFadden/R3/USEPA/US@EPA, Amy Bergdale/R3/USEPA/US@EPA  
**Date:** 04/13/2010 08:46 AM  
**Subject:** radiation levels

Please start from the bottom. I contacted Hydratwo who worked in the Hazardous Sites profession. I invited him to join this list and discussion. Meanwhile, he asked me to forward this correspondence.

OK. Thanks [redacted]. BTW, did informally chat with one of my friends and appears that their conversations indicated that gross beta has a screening level of 50 picocuries/liter. What this means if it exceeds this number then speciation of what is causing this number should be the normal. Seems like all these are above either this screening number and the established MCLs for the other values. This could be background but personally would be suspicious as the Catskill is very common water bearing formation in that areas as well as lots of NE PA areas outside of Susquehanna County.

In a message dated 4/12/2010 10:37:11 A.M. Eastern Daylight Time, [redacted] epix.net writes:

Thank you! Please forward as necessary. Are you on the SusquehannaCoutyGasForum? If not, you may want to join and post directly to the group <http://groups.google.com/group/susquehannacogasforum/topics>. If you prefer not to join, I can forward your response.

Thanks again,

[redacted]  
Ex. 6 - Personal Privacy

On Apr 12, 2010, at 10:23 AM [redacted] @aol.com wrote:

Ex. 6 - Personal Privacy

I will check on this but just a few initial observations.

The gross alpha seems to vary considerably between Ex. 6 - Personal Privacy wells. It is normal to have some variation of any parameter in a sample but note that the two Ex. 6 - Personal Privacy samples (223 and 160) seem to be much lower than the Ex. 6 - Personal Privacy alpha of 1348. The gross beta is slightly more also at the Ex. 6 - Personal Privacy well but in at least the same order of magnitude. Radium isotopes 226 and 228 seem in same area for two locations.

There is no reported Radium 228 for Ex. 6 - Personal Privacy location one. Did they include this?

A brief comparison with EPA Maximum Contaminant Levels seems to be of concern. Note that gross alpha is well over the MCL of 5 picocuries/liter. Combined Radium 226 and 228 should also not exceed 5 picocuries per liter.

It could also be important to have the analysis of the organics and inorganics for comparison that were noted as found.

Do you know who took these samples? In the Hazardous Sites Program (where I worked) we would provide the resident not only with the laboratory analysis but an evaluation and notice if there was any exceedance of the MCL. Another poor practice seems to be not defining what is normal background concentrations for the normal drinking water aquifer which in this case would most likely be the Catskill Formation. There is obviously some variation in values but at this point in time there should be some statistical background for the parameters of concern.

At this point will just discuss verbally and casually with a friend that has expertise in levels. Would it be ok to forward this email if warranted?

In a message dated 4/12/2010 9:12:41 A.M. Eastern Daylight Time, Ex. 6 - Personal Privacy [epix.net](mailto:epix.net) writes:

•The following was posted to the SusquehannaCountyGasForum. Can you respond?

Thanks,

Ex. 6 - Personal Privacy

•Citizen <Ex. 6 - Personal Privacy [@gmail.com](mailto: @gmail.com)> Apr 11 08:27PM -0700 ^

•The following info was copied verbatim from the water treatment plant

•Permit submitted last fall to the DEP. This was permit was on public

- display at the Tunkhannock Library and i photocopied the pages.You can
- see the radiation levels that were recorded in the samples of the
- flowback from several wells in Dimock, PA.
- Anyone care to comment on the radiation levels?
- Permit for : PA0065293 Wyoming-Somerset Regional Water Resources
- Corporation- Lemon Township, Wyoming County
- Larry Mostoller- President
- 4 SR 1006
- Tunkhannock, PA 18657
- 814.279.0044

Ex. 6 - Personal Privacy [@gmail.com](#)

- Samples of wastewater and were included in the permit. They were taken
- in Dimock, PA on 8.24.08 at Ex. 6 - Personal Privacy 1 well and on 8.21.08 at Ex. 6 - Personal Privacy 2 and
- on 7.19.08 at Ex. 6 - Personal Privacy 5 by Quantum Laboratories, Dickson City PA.
- Sample analysis found the following;

Ex. 6 - Personal Privacy 1

- Radioactivity
- Gross Alpha 223.3 pCi/L
- Gross Beta 309.2 "
- Radium 226 69.63 "

Ex. 6 - Personal Privacy 2

- Radioactivity
- Gross Alpha 159.9 pCi/L
- Gross Beta 210.3 "
- Radium 226 69.32 "
- Radium 228 9.64 "

Ex. 6 - Personal Privacy 5

- Radioactivity
- Gross Alpha 1348 pCi/L
- Gross Beta 381.2 "

- Radium 226 72.58 "
- Radium 228 31.74 "
- Other analysis found;
- Aluminum, barium, boron, cobalt, iron, manganese, molybdenum, tin,
- titanium, antimony, arsenic, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, thallium, zinc.
- Ammonia nitrite, nitrate, phosphorus, chloride, oil and
- grease, chlorine, cyanide, fluoride.

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